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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,663	01/23/2004	Bahram Khalighi	GP-303632	8227

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EXAMINER	
ROYAL, PAUL	
ART UNIT	**PAPER NUMBER**
3611	

DATE MAILED: 08/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/763,663	KHALIGHI ET AL.	
	Examiner	Art Unit	
	Paul Royal	3611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7 and 9-15* is/are rejected.

7)☐ Claim(s) *2 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 January 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendments filed on 06/02/05 have been entered.

Response to Arguments

2. Applicant's arguments, see Applicant's paper filed 06/02/05, with respect to the prior art Morelli (US 5,820,203) as applied to the 35 U.S.C. 102 (b) and 35 USC 103 (a) rejections of claims 1-15 have been fully considered and are persuasive. The rejection of claims 1-15 has therefore been withdrawn.

Drawings

3. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: To ensure clarity, applicant must provide an explanation of the terms "CFD", "CD", "CMM" prior to or contemporaneous to the usage of the terms.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 is rejected as unclear because the word "whereby" in line 6, should be "thereby" because the word whereby seems create an indefinite phrase. For example ..."*whereby* to form a virtual airdam with the air received to reduce drag on the movable support" is indefinite/unclear, whereas, "*thereby* to form a virtual airdam with the air received to reduce drag on the movable support" is clear.

In claim 14, it is unclear how the claimed invention *increases* volumetric air flow. To increase air flow, there should be an initial air flow volume and an air flow volume which is different than the initial air flow volume or some change in air flow volume. While applicant's invention may provide an increase in air flow volume above the prior

art or known inventions, the invention as presented does not produce a change in air flow volume which could reasonably be called an increase an air flow volume.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Englar (US 5,863,090).

Englar teaches a vehicle having a forward end including a conduit (17) spaced from a support surface/ground for the vehicle, said conduit having a source (see column 36-39) of air under pressure and is spaced sufficiently from any normal abutment on said support surface/ground to avoid said abutment and operable to project a curtain of air from said forward end toward said support surface with sufficient flow and direction to form a virtual air sufficiently to reduce vehicle drag (see column 7, lines 4-9).

For claims 4 and 5, note Englar teaches the source of compressed air may be a flow regulated compressor which is generally understood to be the same as an adjustable blower.

7. Claims 1, 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kretschmer et al. (US 4,673,206).

Kretschmer et al. teaches a motor vehicle with an air guidance device arranged in the body, the vehicle having a forward end including a conduit (4) spaced from a support surface/ground for the vehicle, said conduit having a source (10, 17) of air under pressure and is spaced sufficiently from any normal abutment on said support surface/ground to avoid said abutment and operable to project a curtain of air from said forward end toward said support surface with sufficient flow and direction to form a virtual air sufficiently to reduce vehicle drag, see column 1, lines 54-68, the conduit including a slit/discharge opening (7) and a fan (17) to provide air flow at low vehicle velocity, and a shroud (9) which partly forms the underside of the conduit (4) .

For claim 5, where the air source is derived in part from ram air through the source of air under pressure (10) due to vehicle speed, the air source will adjust with the vehicle speed.

8. Claims 7 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kretschmer et al. (US 4,673,206).

Kretschmer et al. teaches a vehicle having a forward end enclosing an engine (not shown but see column 3, lines 32-33) needing cooling air and including a conduit (4) spaced from a support surface/ground for the vehicle, said conduit (4) substantially extending transversely across the forward end of the vehicle and having a source of air pressure (10, 17 and see column 36-39) and spaced sufficiently from any normal abutment on said support surface to avoid said abutment and operable to project a curtain of air from said forward end toward said support surface with sufficient flow and

direction to form a virtual airdam sufficiently to reduce vehicle drag (see column 1, lines 54-68), and

wherein the source of air is a fan/blower (17) and there is a radiator (16) in airflow communication with the fan/blower (17).

Note the exit (7) of the conduit is understood to be at least a slit for projecting the air curtain.

9. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Kretschmer et al. (US 4,673,206).

Kretschmer et al. teaches a method of reducing drag and increasing volumetric airflow for cooling in a moving vehicle's engine compartment positioned above a vehicle support comprising:

forming an air conduit (4) substantially across the forward end of said vehicle to form a jet-forming outlet (7) positioned to direct the air in a downward direction away from said compartment and toward said vehicle support; and

supplying air through said conduit (4) in a sufficient volume to said jet-forming outlet to form a virtual airdam at least partially between said engine compartment and said vehicle support which sufficiently intercepts an air stream created by the moving vehicle to reduce vehicle drag (see column 1, lines 54-68).

10. Claim 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kretschmer et al. (US 4,673,206).

Kretschmer et al. teaches a virtual airdam assembly for a movable support (1) on a roadway and comprising an elongated conduit (4) configured to be supportable on the underside of a front end portion of the movable support (1), said conduit (4) configured to extend-transversely across said front end portion and having an inlet opening (5) configured for receiving air and an outlet opening (7) configured to project a jet of air in a downward direction toward said roadway, thereby to form a virtual airdam with the air received to reduce drag on the movable support (1) (see column 1, lines 54-68) , and

a blower (17) for supplying at least a portion of the air received by the inlet opening of the conduit,

wherein in the movable support (1) is a vehicle front engine compartment sdapted to receive ram air and the outlet (7) of the conduit (4) is configured to project a curtain of air away from the engine with sufficient flow to provide airflow for cooling in the engine compartment.

11. Claims 13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Englar (US 5,863,090).

Englar teaches a virtual airdam assembly for a movable support on a roadway and comprising an elongated conduit (17) configured to be supportable on the underside of a front end portion of the movable support,

said conduit (17) configured to extend transversely across said front end portion and having an inlet opening (21) configured for receiving air and an outlet opening (22) configured to project a jet of air in a downward direction toward the roadway, whereby to

form a virtual airdam with the air received to reduce drag on the movable support (see column 7, lines 4-9).

For claim 15, note Englar teaches the source of compressed air may be a flow regulated compressor which is generally understood to be the same as an adjustable blower.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kretschmer et al. as applied to claim 1, in view of O'Connell (US 6,223,843). Kretschmer et al. as applied to claim 1, teaches a vehicle as recited but does not teach including a fuel cell and a radiator in air flow communication with a source of air under pressure.

O'Connell et al. teaches a motor vehicle front section including an engine (12), fuel cell (36) and a radiator (62) in air flow communication to provide a vehicle having maximized passenger compartment space which uses fuel cells in place of internal combustion engines.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the vehicle of Kretschmer et al. to include the motor vehicle front

section to include having the fuel cell and a radiator in air flow communication with the source of air under pressure to provide a vehicle having maximized passenger compartment space which uses fuel cells in place of internal combustion engines.

Note, where the radiator receives ram air when the vehicle moves, the ram air is air under pressure when it contacts the radiator, rather than stagnant air.

Note that the engine (12), fuel cell (36), and radiator (62) of O'connell, when combined with Kretschmer et al. are positionable to be in the same path of air flow and communication.

Allowable Subject Matter

13. Claims 2 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

For claims 2 and 8, the prior art does not show a vehicle as claimed including the limitations of the independent claims, which are applicable to the dependent claims, wherein the vehicle includes the conduit having a series of ports for projecting the curtain of air.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Stalker teaches a means of reducing the fluid resistance of

propelled vehicles. Broell teaches a vehicle air flow system. White teaches a vehicle spray reducing apparatus. Theis teaches an method and apparatus for directing a stream of pressurized fluid at a location forward of a wheel to improve the traction of the wheel. Takemoto teaches an automobile having wings. Maddalena teaches a water and debris deflector and vaccum.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Royal whose telephone number is 571-272-6652. The examiner can normally be reached on 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lesley D. Morris can be reached on 571-272-6651. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

P. Royal
8/22/2005

Paul Royal
Examiner
Art Unit 3611

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